eyeheight

vistaHDi

HD SDI mix/wipe processor
18/07/06 v1.00 Preliminary

user manual

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1 System Overview

This manual describes the function of the vistaHD. This unit is a broadcast quality High Definition 2 input mix/wipe with Program and Preview outputs with full 10 bit processing.
If more than 2 inputs are required then the irisHDi has an integral 8 input mixer.

1.1   The vistaHDi Product

The vistaHDi is an A/B (2-Input + HD-SDI reference) HD-SDI Mixer/Wipe/Cut unit that will output a variety of transitions commonly used in transmission and post-production. The main features are as follows:

- A/B Mix transitions

- A/B Wipe transitions with up to 8 wipe patterns and soft borders

- A/B Cut Transitions

- Programmable (Auto) or manual transitions

- Program Output (Out1)

- Preview Output (Out2)

- Up to +/- 1/2 a line user definable synchronisation window for A/B (In2/In3) Inputs relative to external reference (In1)

- HD-SDI can just be a distribution amplified copy of input A

- Transparent to all embedded signals

- Automation controllable

- CRC re-insertion

- 6 user memories.

1.2   Applications for the vistaHDi

Applications for the vistaHDi include the following:

- Small Presentation systems

- Telecine suites, grading wipes

- Offline duplication suites, top and tailing

- A/B Split screen

The vistaHDi will be used in a situation where any A/B mix or wipe transitions are used. Normally the A and B inputs will be fed from an external routing switcher to obtain the maximum functionality.
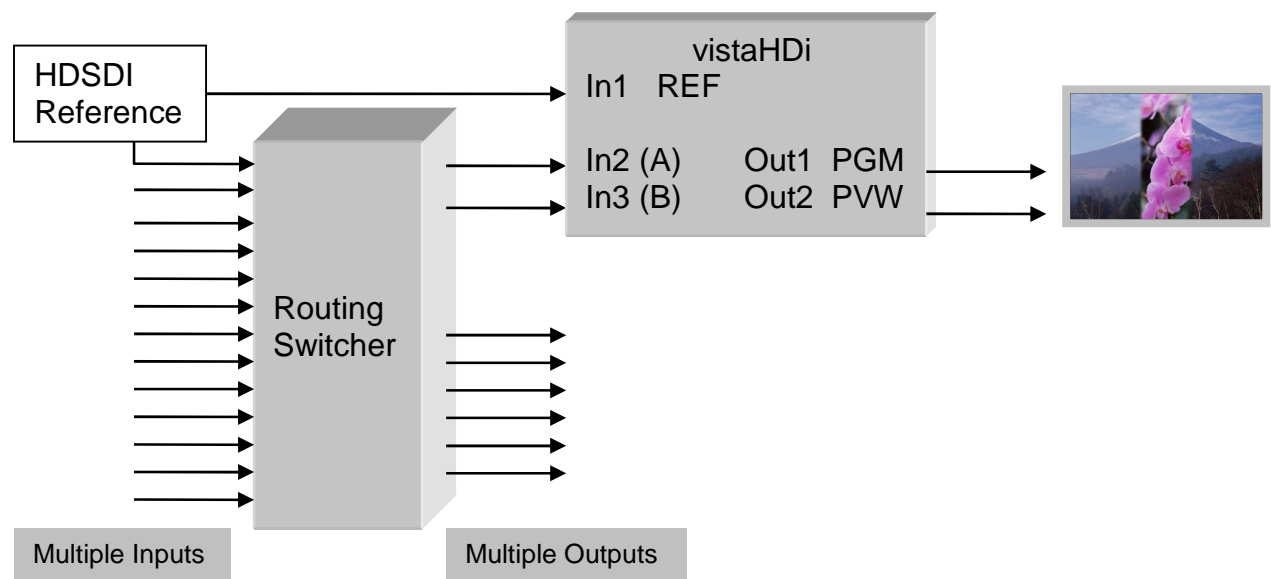
Figure 1-1 vistaHDi configured with a router to provide expanded inputs

Figure 1-2 Basic vistaHDi system components

2 Installation

The vistaHDi system comes in two parts, the control panel and the processing chassis.

2.1 Control Panels.

The vistaHDi comes configured to operate directly from a simple VP-10 T-Bar control surface.
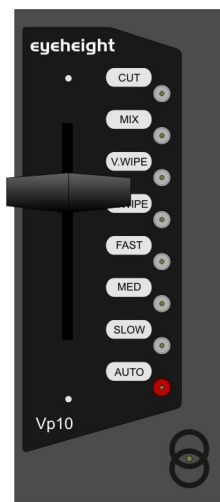
2.2 Optional Control Equipment for vistaHDi

While the vistaHDi is designed to offer a complete system it is also possible to extend the functionality through the addition of further modules. The available modules are:-

- A 1RU control surface that can act as a remote control panel either in a 19 inch rack or desk mounted. This is called a flexiPanel (Order code FP-9) and provides access to the control and configuration menus as detailed in section 3.

- A desk mounting control surface (Order code FP-10). This is a 4RU version of the FP-9 above designed to be desk mounted and is mechanically compatible with the vistaHDi VP-10 control panel.

- An additional processing unit and VP-10 control surface(contact Eyeheight Sales) to expand the vistaHDi to provide a second independent mix/wipe channel.

Figure 2-1 deskPanel (FP-10) show with vistaHDi VP-10 control panel

Figure 2-2 flexiPanel (FP-9)

2.3 Main Processing Chassis

2.3.1 Environmental requirements.

The vistaHDi Processor is either in 1RU chassis mount (FF-6 option) or standard desk mount.

The 1RU chassis mount requires 4 x M5 rack bolts to secure the unit at the front into a 19" rack. It is necessary that the unit be given support at the rear to minimise stress on front fixing chassis.

The units should be run in an air-conditioned technical area with an ambient temperature no greater than 30 C.

2.3.2 Electrical requirements.

An vistaHDi system will use less than 50 Watts of power from an electrical supply. The power supplies are "Wide Range" and will operate from a steady 100→250 Volts AC 47 to 63 Hz. A clean technical feed is required to ensure "Glitch Free" operation.

Each evolution is currently fitted with one live-wired 2 amp fuse, which is detachable underneath the IEC inlet. The fuses should only be replaced with "slow-blow one Amp 20mm type".

Important Note:
Do not handle any mains equipment with wet hands or remove the cover without disconnecting the mains feed first.

2.3.3 Video connections.

The main processing chassis consists of an Eyeheight Evolution unit which forms a two input A/B Mixer/effects Unit with external reference.
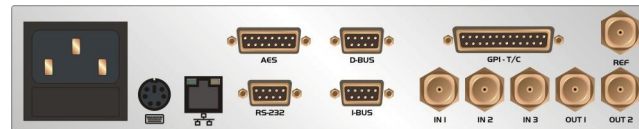
Figure 2-3 Rear of Main Processor Chassis

Connections:

In 1 is HD-SDI Reference Input

In 2 is HD-SDI A Input

In 3 is HD-SDI B Input

Out 1 is HD-SDI Program Output

Out 2 is HD-SDI Preview Output

Use suitable HD-SDI video cable with BNC connectors.

2.4 GPI/Tally connections.

Given in the tables below are the GPI input and output connections on the vistaHDi which are available on the 15W D-type connector on the rear of the unit.

Figure 2-4 GPI Connector Pin Outs

Pin#	Function
1	General Purpose Output #1a (GPO1a). Isolated Relay closure. Tally Out "A On Air"
2	General Purpose Output #1b (GPO1b). Isolated Relay closure. Tally Out "A On Air"
3	General Purpose Output #2a (GPO2a). Isolated Relay closure Tally Out "B On Air"
4	General Purpose Output #2b (GPO2b). Isolated Relay closure Tally Out "B On Air"
5	Not Used
6	Not Used
7	Not Used
8	Not Used
9	Not Used

10	Not Used
11	Not Used
12	Not Used
13	General Purpose Input #1 (GPI 1). Pull to Ground to activate. Transition to Ground – A on air Transition to Open – B on air
14	General Purpose Input #2 (GPI 2). Momentary pull to Ground to activate. A on air
15	General Purpose Input #3 (GPI 3). Momentary pull to Ground to activate. B on air
16	Not Used.
17	Not Used.
18	Not Used.
19	Not Used.
20	Not Used.
21	Not Used.
22	Not Used.
23	
24	
25	GND

2.5 Connecting the panel to the chassis.

The vistaHDi control panel (VP-10) is connected to the processing module by means of a single cable. The cable contains a "two wire" data connection called the I-Bus (or sometimes called the Can-Bus, these are the same!) and the power connection (+13V).

All these connections are on the 'I-Bus' connector of the evolution chassis of the processing module or each control panel block which have 9 Way D-type connectors that require connecting together.

Every vistaHDi is delivered with a test ribbon cable to connect the I-Bus connectors. This is provided for initial customer testing of the complete vistaHDi system and it is the customer's responsibility to produce the wiring for the final installation.

2.5.1 Control panel connections for a single channel vistaHDi

I-Bus function of 9W D-type	Processing Module	VP-10
Ground	1,5	

I-Bus-	2
+13V	4,9
I-Bus+	7

Connect the pins on the 9 way D-type I-Bus connectors as per the above table. The vistaHDi processor module contains the +13V power supply, which is fed to the VP-10 control panel.

Important note:

For optimum performance of the I-Bus each end of the I-Bus link should be terminated with two 100 Ohm 1/8 Watt resistors. (Connect the resistors between pins 2 and 7 of the 9W D-type connector, one at each end of the control cable). For Cable lengths of 10 meters or more, it is <u>highly</u> recommended that the I-Bus cable is impedance matched to 110 Ohms. We recommend digital audio cable such as that used for AES EBU for broadcast applications. Using impedance matched cable enables I-Bus connections of up to 200 meters.

3 Operation

3.1 T-Bar Panel VP-10

In the vistaHDi product, the T-bar panel has different "Hot key" definitions in order to make up for the lack of a system controller.
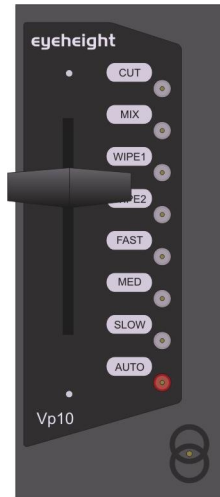
Figure 3-1 T-Bar Panel VP-10

Cut,   this will put the mixer into cut transition mode.

Mix   This will put the mixer into mix transition mode.

Wipe1   This will put the mixer into vertical wipe transition mode.

Wipe2   This will put the mixer into horizontal wipe transition mode.

Fast   This will change the auto transition time to Fast (approx 0.3 sec)

Med   This will change the auto transition time to Medium (approx 0.5 sec)

Slow   This will change the auto transition time to Slow (approx 1 sec)

Take   This will perform an auto transition.

3.2 The Optional Control Panel FP-10

The optional control panel allows the user to control all the finer set-ups within the vistaHDi system.

Figure 3-2 The Optional Control Panel FP-10

Mixer This button selects the IHDMW mixer and allows control of the whole set-up of the unit

Next This is used to navigate through menus of the vistaHDi. (Next menu)

Prev This is used to navigate through menus of the vistaHDi. (Previous menu)

Setup This allows the user to drop and pick up different vistaHDi systems in a multi channel environment. Pressing this button for less than two seconds displays the panel number, for longer than two seconds, the user enters multi channel set-up mode.

3.3   Multi channel operation.

The vistaHDi are capable of operating in a multi channel environment using the FP10 optional control panel with irisHDi software programmed into it. Each panel can drop and pick up any one of up to eight channels. The following procedure shows how to do this.

Keep the set-up button pressed until the display changes to the following:

| Panel No.1 Ver3.6 | > > > | ASSIGN Chan'1 | EXIT |

Press "Assign Chan'l" to continue to multi channel set-up. The display should look similar to the following:

Iris1 IsWith Panel1	FREE Chan		EXIT
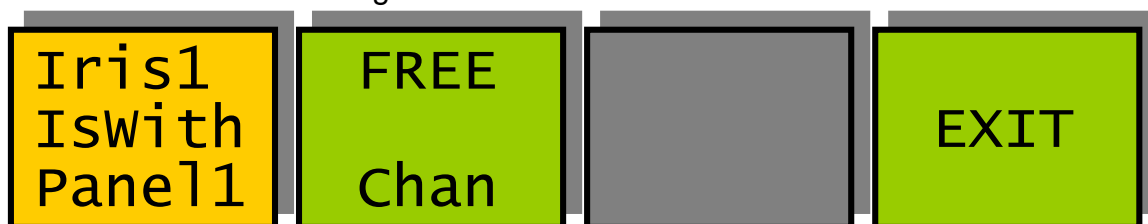
In this case, the display invites you to press the "FREE Chan" button. This will take away control of the channel from this panel. The display will then look like this:

Iris1 Is FREE		AQUIRE Chan	EXIT
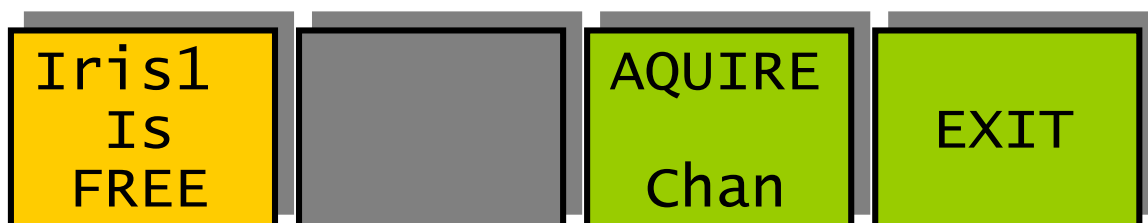
To then pick up another channel press the flashing "Next" button. If channel 2 is available, the display will look like this:

Iris2 Is Free		AQUIRE Chan	Exit
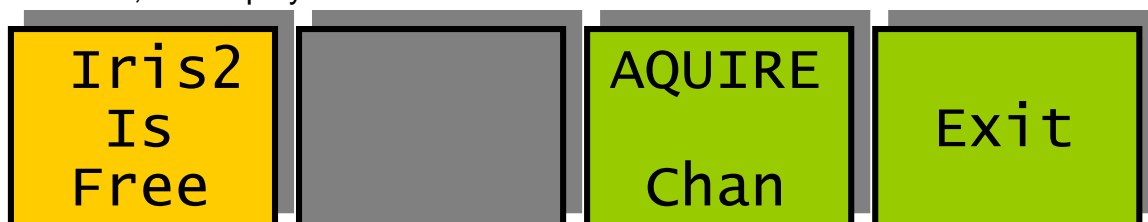
If channel 2 is not available, the display may look something like this:

Iris2 Is Absent			EXIT
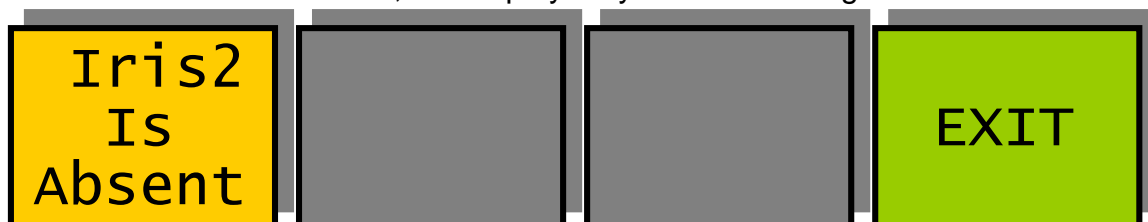
If channel 2 is currently under the control of another panel the display may look something like this:

Iris2 IsWith Panel4			EXIT
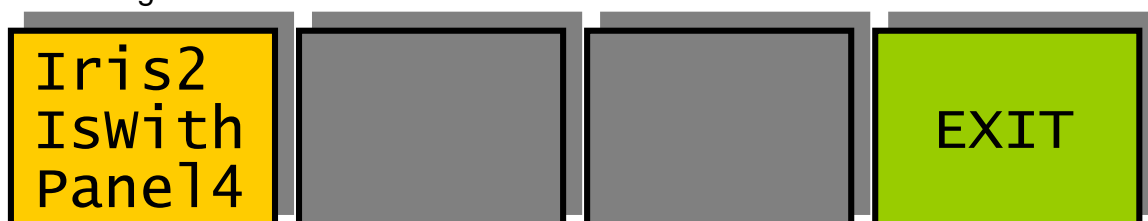
In this case, panel 4 is controlling vistaHDi 2. In the case above, that channel 2 is available, the user is invited to press the "AQUIRE Chan" button after which the

display will look like this:

Iris2 IsWith Panel1	FREE Chan		EXIT
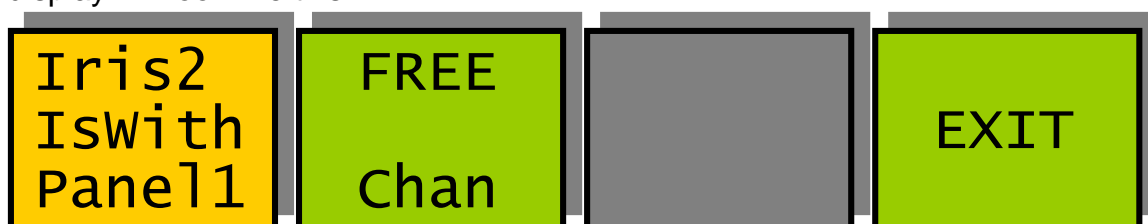
If the user now presses "EXIT", normal mixer operation resumes.

The above gives the user an idea of how to change channels from a panel. This example can only show one certain configuration of panels and channels. The user will need to use this example as a general guide when coming to a system for the first time.

3.4 Automation control.

The vistaHDi vision mixer can be fitted with PresTX automation control. Please contact eyeheight for further information. The Grass Valley GVG2100 protocol is also available.

3.5 Mixer Full menu set.

Pressing the mixer key enables the user access to the full menu set of the Main Processing Module. Some of these menus are not applicable for the vistaHDi mixer. Where the menu is not applicable, the background of the menu will be filled in with grey.

Menus 00-03 Top Level Menus

Play	Video	Audio	Utils

Menu Num.	Heading	Automation	Function
00	PLAY	none	Go To the main Play menus (4-7)
01	TRAN	none	Go To the main Transition menus (8-23)
02	AUDIO	none	Go To the main Audio menus (24-35)
03	UTIL	none	Go To the main Utility menus (36-67)

Menus 04-07 PLAY Menus

TAKE VidAud   **PROGM: A**   **PRSET: B**   **Back**
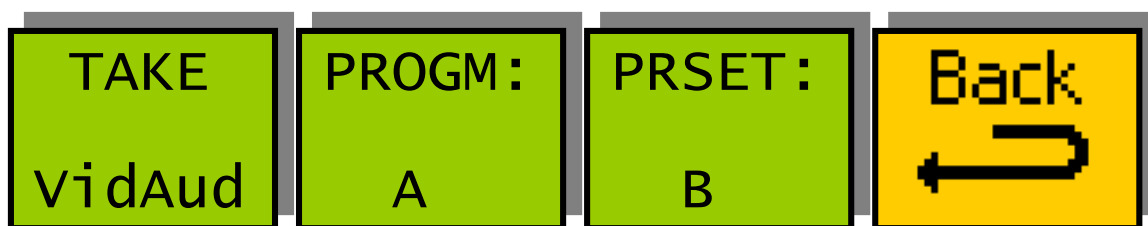
Menu Num.	Heading	Automation	Function
04	TAKE	1=take B 2=take A	This Causes the Auto Transition to occur.
05	PROGM	0=In A 1=In B	This Shows the currently selected "On-air" Source. A or B
06	PRSET	0=In A 1=In B	This Shows the NEXT selected "On-air" Source. A or B
07	BACK	none	Go To the Top Level Menus

Menus 08-11 VIDEO Transition Set-up Menus (NEXT for more)

TIMES: Tr=11 Hd=15   **TAKE VidAud**

Menu Num.	Heading	Automation	Function
08	TRANS	0=Mix 1=Wipe 2=Cut 3=Cut-Cut 4=Cut-Fade 5=Fade-Cut 6=Fade-Fade	This sets the transition type between Mix, Wipe and Cut and "U" and "V" fade types. "U" and "V" fades Transition to either "Black" or "Matte" and then "Hold" for a period before then transitioning to the Preset Source.
09	TIME	Menu Level "A" 1-200 Menu Level "B" 1-200	Press this button and the two digipots indicated by the lit LED's will change the transition time (in fields - Tr) and the Hold time (in fields – Hd). The Hold time is the time that the "U" and "V" fades stay on Black (Or Matte).
10	WIPE (Pattern)	0=Vertical 1=Horiz 2=Vert Curtain 3=Horiz Curtain	This shows a representation of the shape of the currently selected Wipe Transition.

		4=Diagonal 5=Diamond 6=Arrow Left 7=Arrow Up	
11	BACK	none	Go To the Top Level Menus

Menus 12-15 VIDEO Transition Set-up Menus (NEXT/PREV to navigate)

BORDER =OFF	Bord Size 81.0 %	Colour Depth =50%	Back
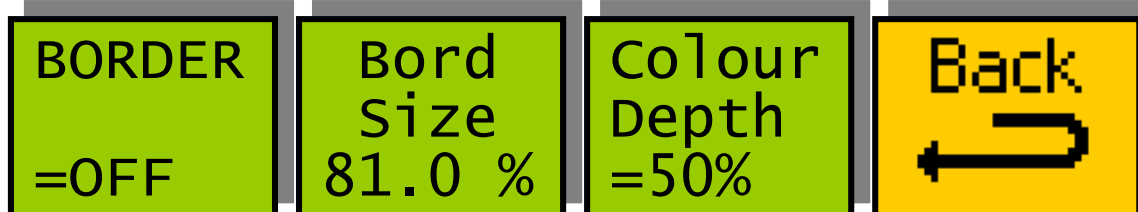
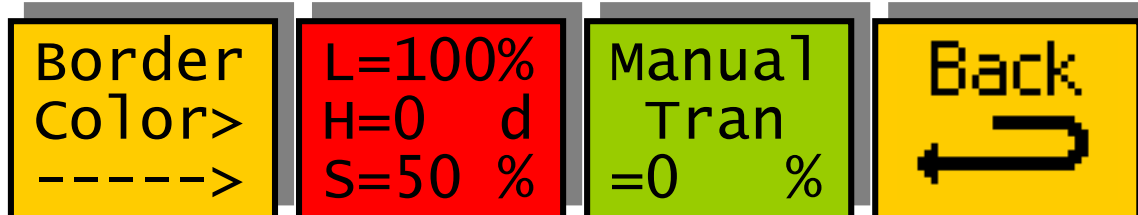| Menu Num.	Heading	Automation	Function
12	BORDER	0=Off 1=Soft 2=Colour 3=Soft&Col	This selects the Type of Border on the Wipe edge between; No Border, Soft, Coloured and Soft and coloured.
13	BORDER SIZE	0-100	This sets up the Wipe Border Size between "0" (min) and "100", (max)
14	COLOUR DEPTH	0-100	This represents the amount of colour in the border when the "Soft and coloured" border option is selected. (0-100%)
15	BACK	none	Go To the Top Level Menus

Menus 16-19 VIDEO Transition Set-up Menus (NEXT/PREV to navigate)

Border Color> ------>	L=100% H=0 d S=50 %	Manual Tran =0 %	Back

Menu Num.	Heading	Automation	Function
16	BORDER COLOUR	NONE	Points to adjacent menu for information only.
17	L= H= S=	Menu Level "A" 0-100 (L) Menu Level "B" 0-359 (H) Menu Level "C" 0-100 (S)	Press this button and the three digipots indicated by the lit LED's will change the Luma, Hue and Saturation of the border colour.
18	MANUAL TRAN	0-100	This will manually move the Transition point between PGM and PST. (0-100%)
19	BACK	none	Go To the Top Level Menus

Menus 20-23 VIDEO Transition Set-up Menus (PREV for less)

Matte> Color> ----->	L=100% H=0 d S=50 %	Hold To: Black	Back
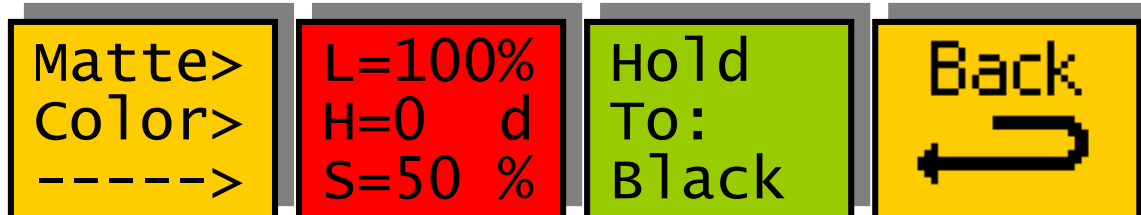
Menu Num.	Heading	Automation	Function
20	MATTE COLOUR	none	Points to adjacent menu for information only.
21	L= H= S=	Menu Level "A" 0-100 (L) Menu Level "B" 0-359 (H) Menu Level "C" 0-100 (S)	Press this button and the three digipots indicated by the lit LED's will change the Luma, Hue and Saturation of the Matte colour.
22	Hold To	0=Black 1=Matte	This is the "Intermediate" source for the "U" and "V" Fades
23	BACK	none	Go To the Top Level Menus

Menus 24-27 Audio Set-up Menus (Future Upgrade) (NEXT for more)

NOT	FITTED		Back

Menu Num.	Heading	Automation	Function
24			
25			
26			
27	BACK	none	Go To the Top Level Menus

Menus 28-31 AUDIO Set-up Menus (Future Upgrade) (NEXT/PREV to navigate)

NOT	FITTED		Back

Menu Num.	Heading	Automation	Function
28	AUDIO:		

29			
30			
31	BACK	none	Go To the Top Level Menus

Menus 32-35 AUDIO Set-up Menus (Future Upgrade) (PREV for less)

NOT	FITTED		Back
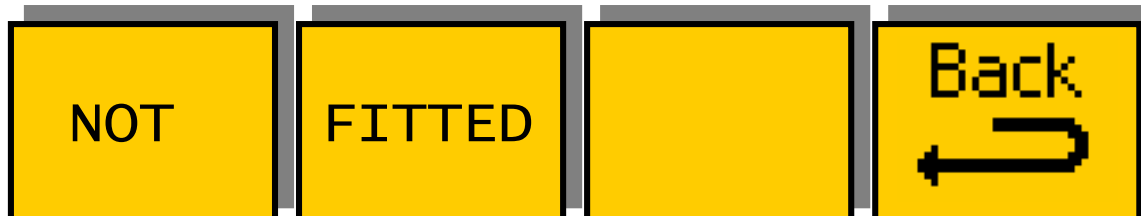
Menu Num.	Heading	Automation	Function
32			
33			
34			
35	BACK	none	Go To the Top Level Menus

Menus 36-39 Utility Menus Nested Menus

Prview	Setup	1234 Mems	Back
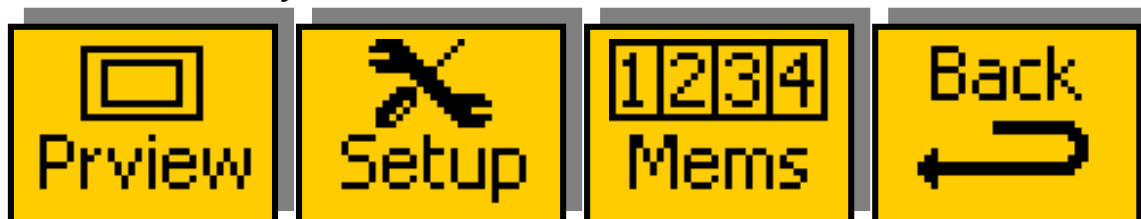
Menu Num.	Heading	Automation	Function
36	Preview	none	Go To preview output menus (40-43)
37	Set-up	none	Go To system set-up menus (44-47)
38	Memories	none	Go To memory menus (48-51)
39	Back	none	Go To the Top Level Menus

Menus 40-43 Utility Menus: Preview

SAFE ACTION OFF	<S.Act <4:3 <Thin		Back
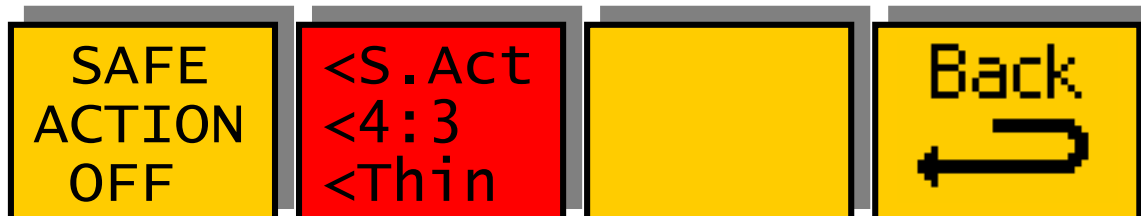
Menu Num.	Heading	Automation	Function
40	SAFE ACTION	None	This Switches on and off the currently selected area. Pressing the "Red"

|			switch next to this one and adjusting the rotary digipots with the lighted green LED's chooses the Selected area.
41			When this button is pressed to "Green". The Three-line display in the window indicates the three options, which can be changed by adjusting the three rotary digipots A, B and C.
		Menu Level "A" 0=S.Action 1=S.Capt. 2=DigEdge 3=An Edge 4=C.App	Digipot A Determines the basic Function Selects "Safe Action" option Selects "Safe Caption" option Selects "Digital Edge" option Selects the "An. Edge" option Selects the "Clean Aperture" option
		Menu Level "B" 0=4:3 1=16:9 2=16p4:3 3=16p149 4=43p16:9	Digipot B Determines the Screen Format Standard 4:3 Screen Standard 16:9 Screen 16:9 Shoot to protect 4:3 16:9 Shoot to protect 14:9 (*) 4:3 Shoot to protect 16:9 (*) (*) -- Not available in 525
		Menu Level "C" 0=Thin 1=Thick 2=Shade 3=Black 4=Dash1 5=Dash2	Digipot C Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area" Dash1 is thin dashed lines Dash2 is thick dashed lines
42			
43	Back	None	Go To the main Utility menus (36-39)

Menus 44-47 Utility Menus: Timing and S/W version

```
Ref          EMW3HB    Back
1100Px       Mix Fx
0    Ln      V3.20
```

Menu Num.	Heading	Automation	Function
44	Timing		When this button is pressed to "Green" the two digipots indicated by the respective LED's will cause modification to…
		Menu Level "A" 0 to 2750	Digipot A the Pixel Timing (6.7nS per step)
		Menu Level "B" 0 to 747 (720p) or 0 to 1123 (1080)	Digipot B the Line Timing
45			
46	Software	None	Shows the software version
47	BACK	None	Go To the Top Level Menus

Menus 48-51 Utility Menus: Memories (NEXT for more)

```
------       ------       ------       next>
Mem 13       Mem 14       Mem 15       *BACK*
Recall       Recall       Recall
```
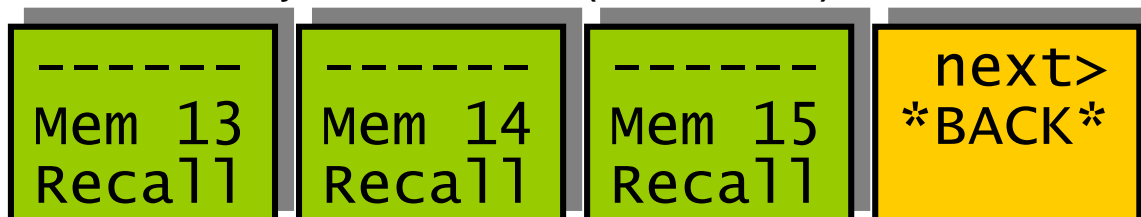
Menu Num.	Heading	Automation	Function
48	MEM1	1=Recall	Pressing this will recall Memory number 1 (depending on video standard being applied).User Names can be programmed in to the memories using a keyboard. See "geNETics User guide", section "Giving product Memories names"

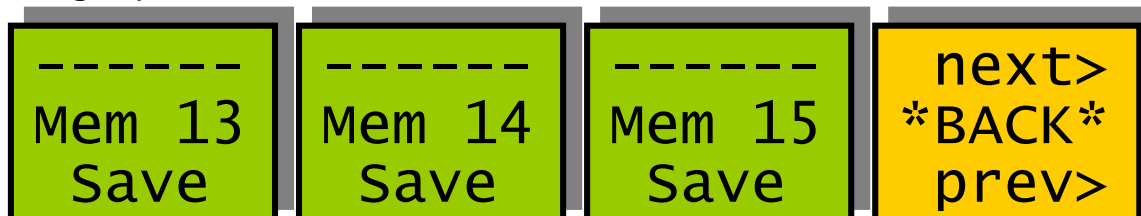|			
49	MEM2	1=Recall	Pressing this will recall Memory number 2.
50	MEM3	1=Recall	Pressing this will recall Memory number 3.
51	BACK	none	Go To the Top Level Menus

Menus 52-55 Utility Menus: Memories (NEXT/PREV to navigate)

```
------       ------       ------       next>
Mem 16       Mem 17       Mem 18      *BACK*
Recall       Recall       Recall       prev>
```
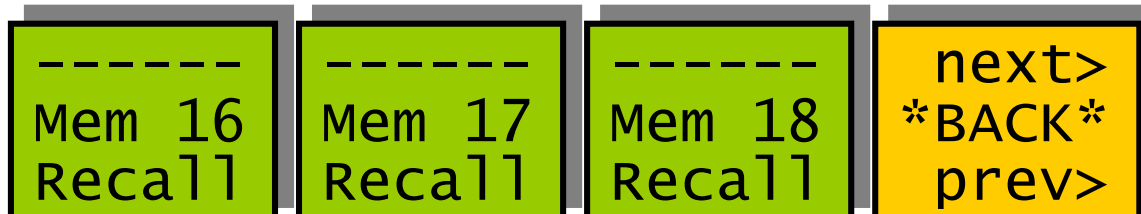
Menu Num.	Heading	Automation	Function
52	MEM4	1=Recall	Pressing this will recall Memory number 4.
53	MEM5	1=Recall	Pressing this will recall Memory number 5.
54	MEM6	1=Recall	Pressing this will recall Memory number 6.
55	BACK	none	Go To the Top Level Menus

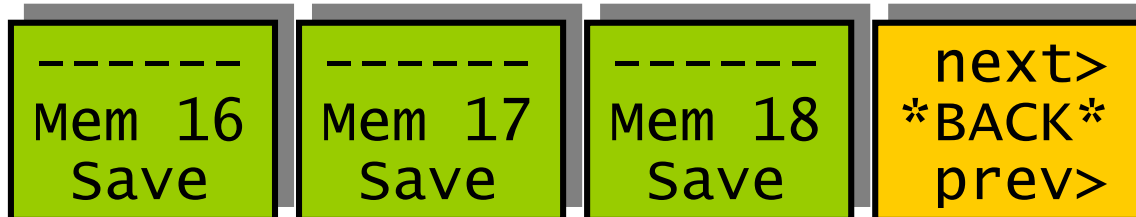**Menus 56-59 Utility Menus: Memories (NEXT/PREV to navigate)**

```
------       ------       ------       next>
Mem 13       Mem 14       Mem 15      *BACK*
Save         Save         Save         prev>
```

Menu Num.	Heading	Automation	Function
56	SAVE MEM1	1=Save	Pressing this will Save Memory number 1 (depending on video standard being applied).
57	SAVE MEM2	1= Save	Pressing this will Save Memory number 2.
58	SAVE MEM3	1= Save	Pressing this will Save Memory number 3.
59	BACK	none	Go To the Top Level Menus

Menus 60-63 Utility Menus: Memories (NEXT/PREV to navigate)

```
 _____        _____        _____        next>
Mem 16        Mem 17        Mem 18       *BACK*
Save          Save          Save          prev>
```

Menu Num.	Heading	Automation	Function
60	SAVE MEM4	1= Save	Pressing this will Save Memory number 4.
61	SAVE MEM5	1= Save	Pressing this will Save Memory number 5.
62	SAVE MEM6	1= Save	Pressing this will Save Memory number 6.
63	BACK	none	Go To the Top Level Menus

Menus 64-67 Utility Menus: Memories (PREV for less)

```
Set As        Recall        TOTAL!        Back
Pow On        Pow On        RESET!
Memory        Memory        !!!!!!
```

Menu Num.	Heading	Automation	Function
64	Set As Pow On Memory	1=Set	Pressing this will set the current system set-up as the Power on memory default.
65	Recall Pow On Memory	1=Recall	Pressing this will recall The Power-on memory set up in the last menu.
66	Total Reset	1=Reset	Pressing this will cause a first Birthday of the unit. All current memories and settings will be lost.
67	BACK	none	Go To the Top Level Menus

4 Appendices

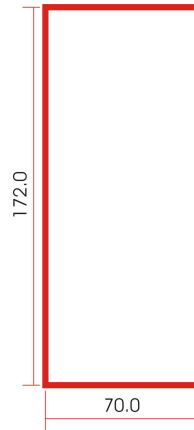## 4.1 Appendix 1, vistaHDi cut-out panel dimensions for VP-10 only

Figure 4-1 VP-10 Desk Cut-out dimensions

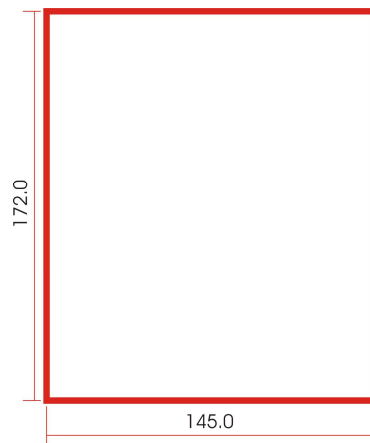## 4.2 Appendix 2, vistaHDi cut-out panel dimensions for FP-10 option

Figure 4-2 FP-10 Desk Cut-out dimensions

4.3 Appendix 3, vistaHDi technical specification

4.3.1 vistaHDi

HD-SDI Inputs 1.485 Gbit, 75ohm	2 A/B inputs for mixer 1 (HD-SDI) reference for IHDMW mixer (NOT AN ANALOGUE REFERENCE)
HD-SDI cable equalisation	At least 100 Meters of Belden 1694A
HD-SDI Outputs. 1.485 Gbit, 75ohm, 800mV.	2 outputs from A/B mixer, Program and Preset.
GPI Outputs	2 off relay outputs indicating A on air or B on air.
GPI Inputs	3 off short to ground inputs giving basic control of transistion.
Control System connections.	eyeheight I-Bus, 2 wire network.
Control Surfaces	Available combination of 2 eyeheight control surfaces. VP-10 or FP-10 and VP-10
Chassis	eyeheight evolution miniBox chassis. 1RU for processor module.
Line Standards	1080-23.98psf, 1080-24psf, 1080-23.98p, 1080-24p, 1080-25p, 1080-50i, 1080-29.97p, 1080-30p, 1080-59.94i, 1080-60i, 720p-23.98, 720p-24, 720p-25, 720p-29.97, 720p30, 720p50, 720p59.94, 720p60
Power Supply Input Range	100→240V ac. 47-63 Hz
Power Supply Input Current	1.8A Max
Operating Temperature	0 ~ 30 degrees C
Operating Humidity	5 ~ 95% non condensing
Power supply	100→240V ac. Less than 50W power consumption.